Name _____

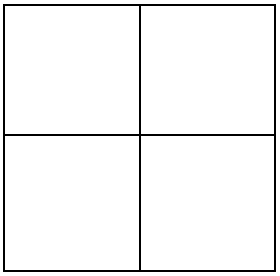
One Factor Genetics Problems

For problems 1-3, do each of the following:

a. Write the genetic cross for the parents (ex- Bb x bb)
b. Show the work in a Punnett Square.
c. Determine the probability that the offspring would have the indicated genotypes and/or phenotypes.

1. In pea plants, tall (T) is dominant over short (t).
Cross two heterozygous tall plants.

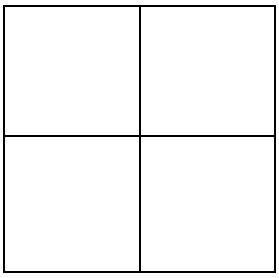
♂ _____ X _____ ♀



Probability offspring has genotype TT: _____
Probability offspring has genotype Tt: _____
Probability offspring has genotype tt: _____
Probability offspring is tall: _____
Probability offspring is short: _____

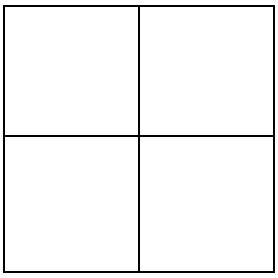
2. In pea plants, round seeds (R) are dominant over wrinkled (r).
Cross each of the following:
(a) homozygous round seeds x wrinkled seeds
(b) two plants that are heterozygous for round seeds
(c) heterozygous round seeds x wrinkled seeds

a. ♂ _____ X _____ ♀



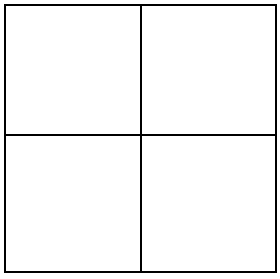
Probability offspring has round seeds:

b. ♂ _____ X _____ ♀



Probability offspring has wrinkled seeds:

c. ♂ _____ X _____ ♀

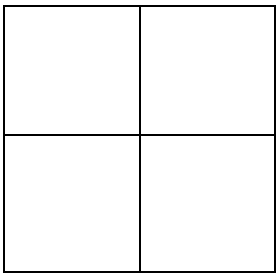


Probability offspring has round seeds:

3. In pea plants, green colored pods (G) are dominant over yellow pods (g).
Cross each of the following:

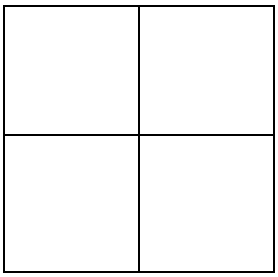
(a) heterozygous green pods x yellow pods
(b) two plants with yellow pods
(c) homozygous green pods x heterozygous green pods

a. ♂ _____ X _____ ♀



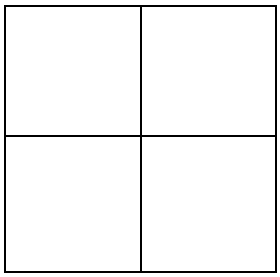
Probability offspring has genotype Gg:

b. ♂ _____ X _____ ♀



Probability offspring has genotype gg:

c. ♂ _____ X _____ ♀



Probability offspring has genotype GG:

4. Axial flower position (A) is dominant over terminal flower position (a).
Two pea plants with axial flowers are crossed.
3/4 of the resulting offspring have axial flowers and 1/4 have terminal flowers.
What are the genotypes of the parents? Support your answer with a Punnett square.

Genotypes of Parents:

♂ _____ X _____ ♀